

CLAIMS

What is claimed is:

- 5           1. A system for use with a piano, organ, or musical keyboard, comprising:  
          an insertable sensor disposed atop the keyboard to sense both white and black key movement  
and circuitry to process sensor signals and transmit at least key-note ON/OFF information and key-note  
velocity;  
          an insertable sensor insertable between a top surface of keys and a bottom surface of a fallboard;  
10           an insertable protector to protect sensors from ambient light interference.
2. The system of claim 1 wherein said insertable sensor detects key depression and said system  
further comprises a sensing strip operatively connected to the sensor for sensing movement of a portion  
of the key hidden from view.
- 15           3. The system of claim 2 wherein said sensing strip operatively connects to one or more sensors  
per key to sense a proportional amount of hidden key movement.
4. The system of claim 1 wherein said sensor comprises an energy contact and a corresponding  
20           energy receiving contact that by itself or when combined with another sensor produces an electrical  
signal strength proportional to movement of the key.
5. The system of claim 4 wherein said energy contact comprises an optical emitter and an optical  
receiver that converts reflected optical energy provided by a key surface to an electrical signal  
25           proportional to displacement of the key.
6. The system of claim 2 wherein said sensing strip is operatively connected to a flexible strip that  
moves in relation to an associated key and provides energy to said sensing strip that is proportional to  
an amount of movement of the key.
- 30           7. The system of claim 6 wherein said sensing strip and said flexible strip comprise a magnetically  
coupled emitter and receiver that converts a magnetic field strength to a corresponding electrical signal  
proportional to a displacement of the key.

8. The system of claim 6 wherein said sensing strip and said flexible strip comprise a capacitively coupled emitter and receiver that converts an electric field strength to a corresponding electrical signal proportional to a displacement of the key.

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9. The system of claim 6 wherein said flexible strip comprises a piezo-electric strip that converts mechanical energy to a negative or positive electrical signal proportional to a pressure by which the key is depressed or released.

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10. The system of claim 6 wherein said sensing strip and said flexible strip comprise two or more electrical contact point pairs electrically biased that close when the key is at rest and open sequentially as the key is depressed.

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11. The system of claim 6 wherein said sensing strip and said flexible strip comprise two or more optical coupler switches electrically biased that are switched on when the key is at rest and open sequentially as the key is depressed.